Background: Somatic gain-of-function mutations in *EGFR* (exons 19 and 21) and *KRAS,* (exon 2) are found in some lung adenocarcinomas. In patients with metastatic disease, these mutations have predictive and prognostic significance: 1) *EGFR* mutations are associated with sensitivity to the tyrosine kinase inhibitors, gefitinib and erlotinib, 2) *KRAS* mutations are associated with primary resistance to these drugs, and 3) patients with *EGFR* mutant tumors may have a longer overall survival (OS) versus patients with *EGFR* wildtype tumors. Whether *EGFR* and *KRAS* mutations also have an impact on survival, when compared to one another, in patients who undergo lung resection for curative intent in the absence of targeted therapy has not been established.

Methods: We analyzed the clinical characteristics and outcomes data for 300 patients who underwent resection at our institution for Stage I-III lung adenocarcinoma. Tumors from all patients were assessed for both *EGFR* and *KRAS* mutations by direct dideoxynucleotide sequencing by the Genome Sequencing Center at Washington University St. Louis, and/or PCR based methods at Memorial Sloan-Kettering Cancer Center. Survival distributions were estimated using Kaplan-Meier curves and compared using the log-rank test.

Results: We found *EGFR* and *KRAS* mutations in tumors from 40 and 50 patients, respectively. No tumor had both mutations. None of the patients with mutations received induction or adjuvant therapy with erlotinib or gefitinib. With a median time to follow-up of 22.3 months, patients with *EGFR* mutant tumors had a longer overall survival on univariate analysis versus patients with *KRAS* mutant tumors (p=0.015, see Figure 1) and a trend towards longer survival versus patients with tumors wildtype for both genes (p=.070). After adjustment for pathologic stage, patients with *EGFR* mutations displayed a trend towards longer survival when compared to patients with *KRAS* mutations (p=0.166). The median OS for patients with *EGFR* mutant or wildtype tumors was not reached, while for the patients with *KRAS*

Conclusions: In the absence of treatment with EGFR-targeted therapy, *EGFR* and *KRAS* mutations are positive and negative molecular predictors, respectively, of survival in resected lung adenocarcinoma. These data suggest further that *EGFR* and K*RAS* mutations define clinically distinct molecular subsets of lung adenocarcinoma. Mutational status should be routinely performed on resected specimens, and *EGFR* and *KRAS* mutations should be considered as prognostic factors in studies of adjuvant therapy.

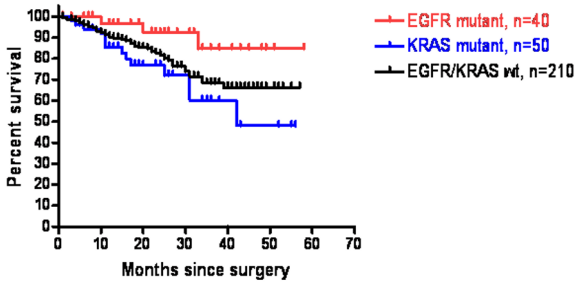

Figure 1. Kaplan-Meier survival curves from 300 patients with resected lung adenocarcinoma. Median survival was not reached for patients with EGFR mutant or wildtype tumors, while it was 42 months for those with KRAS mutant tumors.

PD5-3-8 **NSCLC-SurgeryNSCLC-Surgery, Thu, 12:30 - 14:15**

Development of a non-small cell lung cancer (NSCLC) survivorship program: baseline clinical characteristics and quality of life (QOL)

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Background: NSCLC is one of the leading causes of cancer-related deaths; however, a substantial number of patients with early stage disease will survive after treatment. No comprehensive clinical programs designed for NSCLC survivors exist and few studies examine the clinical characteristics and quality of life in NSCLC survivors.

Methods: A novel thoracic cancer survivorship program (TCSP) utilizing a nurse practitioner (NP) care model was developed at a single institution. Eligible patients include those with history of Stage I/II NSCLC, 1 year after surgical resection without evidence of disease. Cancer surveillance and post-treatment evaluation are performed by the NP with history and physical examination and a contrast-enhanced chest CT scan biannually for the second post-operative year and annually thereafter. Patient demographics, clinical characteristics, QOL assessment and cancer screening compliance data are collected in a prospective thoracic survivorship database. Retrospective review to examine baseline clinical characteristics and QOL was performed.

Results: A total of 223 patients with NSCLC were seen in the TCSP from January, 2006 through February, 2007. The mean age was 71 years (range 48-91). Fifty-eight percent (n=129) were female. Eighty-five percent (n=191) of patients were diagnosed with Stage I NSCLC, and 87% (n=195) were treated with surgery alone. A small number of patients received either induction (n=14, 6%) or adjuvant treatment (n=14, 6%) with either chemotherapy, radiation therapy, or both. Disease-free interval ranged from 1-18 years. Eighty-one percent (n=181) of patients identified themselves as former tobacco smokers, with only 5% (n=11) reporting current tobacco use. Using a 0-10 numeric rating scale (NRS) to report average level of pain and fatigue, 155 patients reported a mean fatigue score of 4.1 with 47% (n=73) rating their fatigue level 5 or higher. The mean pain score for 154 patients was 2.2 with 21% (n=33) rating their pain level 5 or higher. Anxiety and depression were measured by self report in 83 patients. One-third (n=28) reported anxiety and 17% (n=14) reported depression triggering a referral for psychosocial support. Seventy-four percent of patients (n=166) reported having some method of colorectal cancer (CRC) screening performed. Eighty-eight percent (114/129) of females reported breast cancer screening with mammography and 50% of these (57/114) reported mammogram within the last year. Cervical cancer screening by Papanicolaou smear (PAP) was reported by 64% of women (82/129) with 39% of these women (32/82) having a PAP test within the last year. Eighty percent (75/94) of males reported undergoing prostate specific antigen (PSA) testing; 67% (50/75) of these men having PSA testing within the past 1 year.

Conclusions: The initial observations of this novel thoracic survivorship program show that a substantial percentage of NSCLC survivors report elevated levels of pain, fatigue, anxiety and depression post-treatment. In addition, adherence to recommended cancer screening tests is highly variable. Based on this, interventions to address the needs of NSCLC survivors are warranted.